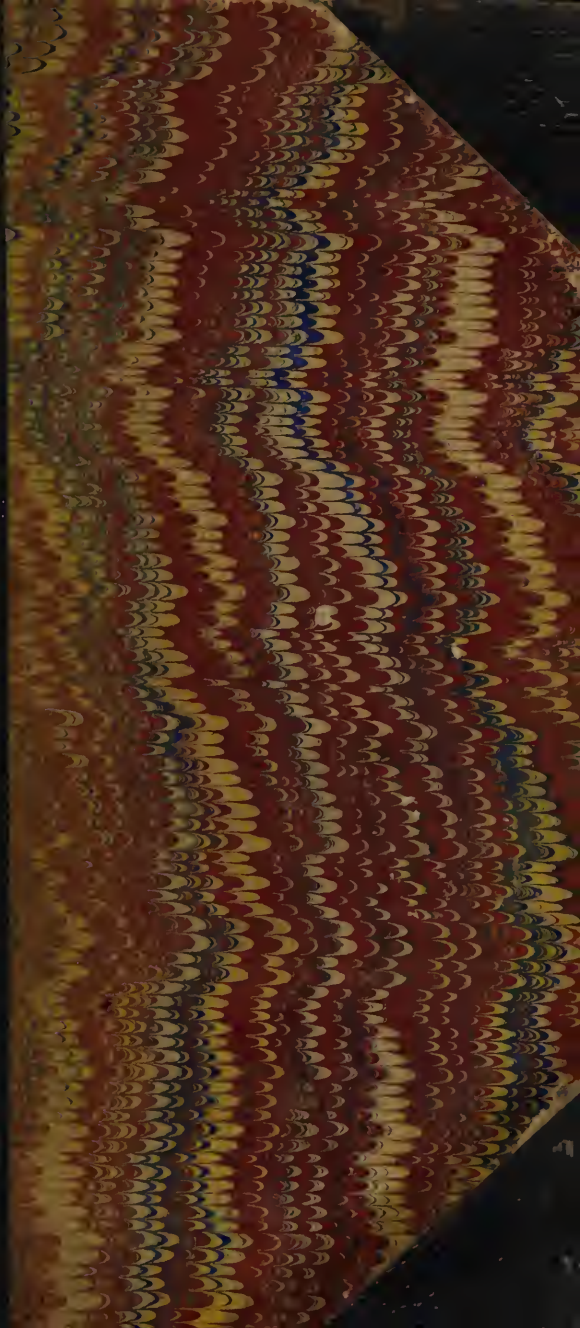


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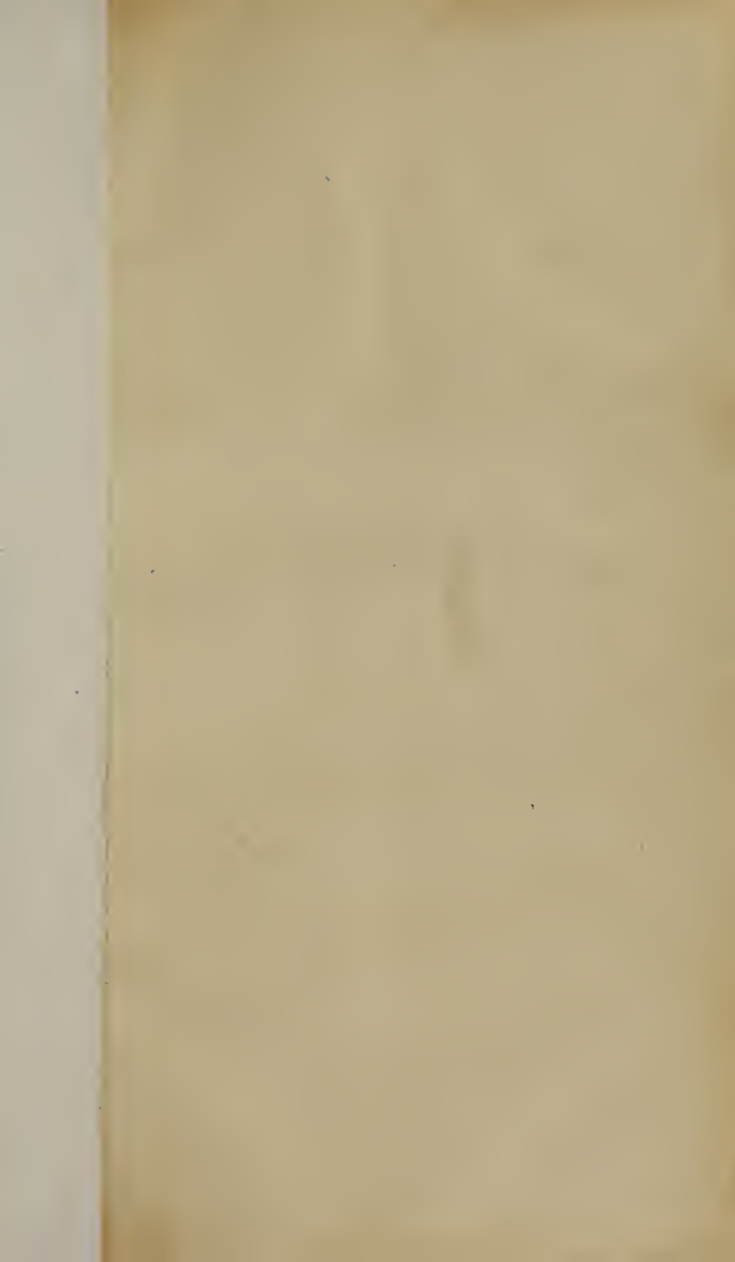


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NOCTURNAL

ENURESIS

AND
INCONTINENCE OF URINE.

BY
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FREDERICK G. SNELLING, M. D.
...
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NOCTURNAL ENURESIS

AND

INCONTINENCE OF URINE.

It seems strange that so annoying and troublesome a disease as enuresis, should be so frequently treated in a random and slipshod manner. Such is the fact however, and it has been estimated that two cases out of every six, will fail of obtaining relief. Even so well known an authority as my late colleague Dr. James Stewart, in his excellent work on the "Diseases of Children" devotes but small space to it, and in speaking of the administration of the Strychnos Nux Vomica as proposed by the Germans, declares that he cannot see the necessity of administering so powerful a remedy for "so trifling an affection." I fear but few mothers would acquiesce in this view of the disorder; for undoubtedly it is one of the most loathsome and repulsive weaknesses that can befall a child; and how infinitely more distressing must it be where the patient is a girl approaching womanhood, or a young married woman.

It is one of those disorders in which routine treatment is not only unavailing but absolutely

mischievous. The primary offending cause may be different in almost every case; and furthermore each period of life appears to have its habitudes and predispositions in the matter. It may arise from :—

Teething.

Intestinal irritation and disordered bowels.

Disease of lumbo-sacral nerves.

Feeble constitution.

Depraved habit of body.

Paralysis.

Over-distension of bladder.

Injury of fibres of sphincter.

Calculus impacted in urethra.

Blows or injuries of abdomen, pelvis or perineum.

Injury to spine.

Concussion of the brain.

Epilepsy.

Hysteria.

Anteverted womb.

Paralysis of neck from pressure of gravid uterus.

Inordinate sexual indulgence.

Vertigo or disturbance of cerebral circulation.

Masturbation.

Calculus in pelvis of kidney.

Disease of the kidney.

Disease of the uterus.

Disease of the vagina.

Worms.

Anal fissure.

Hæmorrhoids.

Results of gonorrhœal inflammation.

Lithotomy.

Diseases of prostate.

Hypertrophy of middle lobe of prostate.

Dystochia.

Pure "nervousness."

A morbid contraction of bladder, etc.

The list might be greatly extended, but such are a few of the causes which have been noticed as giving rise to it. It is evident, therefore, that it is futile to prescribe any routine course of treatment until a careful study of each case is made, and the point of origin of the disease determined. To the removal of that exciting cause the treatment should be at once directed. The enuresis being but a consequent or secondary pathological condition, would be a matter for subsequent consideration.

In glancing over the list of causes, it is apparent that, diverse as these may be, they can only act by giving rise to one of three prime conditions, viz :

Atony or paralysis of the bladder itself, permitting over distension and resulting in stillieidium.

Abnormal irritability and contractility of the bladder sufficient to overcome the resistance of the sphincter.

Or, Atony or paralysis of the sphincter vesicæ itself.

These conditions may vary in degree; or in a given case two of the conditions may coexist, as for example paralysis of both bladder and sphincter.

The nervous supply of the bladder is large and is derived as follows. The *hypogastric plexus* supplies all the viscera of the pelvic cavity. It is situated in front of the promontory of the sacrum, at the bifurcation of the common iliac arteries, and

is formed by the union of various filaments from the aortic plexus, the lumbar ganglia and first two sacral plexuses. It bifurcates below, and forms the two *inferior hypogastric* or *pelvic plexuses*. These lie at the side of the rectum and bladder in the male; and rectum, vagina and bladder in the female. From the fore part of the pelvic plexuses are derived the *vesical plexuses* which ramify and distribute fibres to the whole bladder, sides, fundus base, and neck, its fibres penetrating its coats in all directions. They are made up of the continuation, as stated, of the inferior hypogastric or *pelvic plexuses* containing branches from the *second, third and fourth sacral nerves*, and a few filaments from the *sacral ganglia*.

As a point of practice it is, therefore, evident that in applying the induced current in this disorder, one pole should be placed over the pubes, and the other *in the rectum*—if the current be not too strong it will occasion no particular discomfort. Should it be found impracticable to accomplish this, it should be placed over the promontory of the sacrum externally. The portions most liberally furnished with nerves are the neck, trigone vesicale and fundus vesicæ. An explanation of the intimate sympathy existing between diseases of the kidney and the bladder may be found in the fact that the *hypogastric* plexus is in great part derived from the *aortic*, which also largely supplies the *renal plexus*. The same sympathy between the prostate and sphincter vesicæ may be explained by the prostatic plexus of large size, being continued from the lower part of the pelvic plexus.

Thus, although like every viscus, it is mainly under the guidance of the sympathetic system of

nerves, is so far brought within the sphere of the cerebro-spinal system, as to allow of a large amount of voluntary control. Nor is this voluntary power wholly limited to the sphincter muscle. A large share of control over the contractile action of the bladder itself is placed in our power in health, and is daily exercised by all of us, albeit unconsciously. The old theory of treatment, therefore, by corporal punishment and ridicule, was not so entirely unphilosophical after all. Its error was chiefly one of application, for in truth we may have insufficiency of power or actual paralysis, *either of the cerebro-spinal fibres, of the sympathetic system, or of the muscular coats of the bladder itself.*

Manifestly, if the deficiency be in the voluntary fibres it would be worse than folly to expect a child to control his sphincter muscle, but I am convinced that this is rare in children to the extent of actual paralysis. There is generally a combination of feebleness of innervation and a habit of inattention preserved from baby-hood. That the nervous system may become *habituated to inattention*, as also on the other hand to the *unconscious exercise of voluntary power* is well known. Officers have slept within a hundred yards of a battery of two-hundred lb.-siege guns and have been unconscious that firing had taken place during the night—while again a skilled mechanic will execute the most complicated and delicate manipulations whilst his thoughts are fixed elsewhere. In the incontinence of the old or middle aged, however, the will is not often at fault. There we generally have to deal with a condition of actual paralysis or irritation entirely distinct from

the above and generally dependent upon different causes and requiring different treatment.

To revert then, there may be three elements giving rise to vesical atony or paralysis *e.g.* paralysis of the cerebro-spinal fibres, paralysis of the sympathetic fibres, or atony of the muscular coat itself. The two latter phrases may be taken exception to.

For paralysis of the sympathetic to take place without death of the part, would seem in the present state of our knowledge to be almost an impossibility, as the sympathetic is assumed to control both involuntary motion (contractility) and nutrition; and that it undoubtedly does so the experiments of Claude Bernard have abundantly established. By sections of the sympathetic in the neck he produces hyperæmia of the part, (loss of contractility) and on the application of the galvanic current to the nerve he produces contraction of the vessels and pallor. Fatigue and exhaustion of the sympathetic system also permits disturbances of the functions of digestion, nutrition and involuntary motion. But that the sympathetic system is *essential* to these processes of nutrition, absorption, endosmosis and exosmosis, contractility and chemical change is by no means so clear, as we see these functions going on in plants in their highest integrity *without the vestige of a nervous system*. It is evident therefore as regards *these* functions the sympathetic system must only be regarded as a controlling or a conducting power (or both); and to assume that in this capacity it may cease to perform its functions, is no more unphilosophical than to assume the same of the cerebro-spinal nerves as we do every day.

As to the other hypothesis that there may be loss of the inherent contractility of the unstriated muscular fibre of the bladder without disease of the nervous tissue, and without material disturbance of the nutrition of the part, there can be no doubt whatever. It is well known that in some species of the *mimosa* (the sensitive plant), the power of contractility or involuntary motion may become exhausted and even entirely lost by undue stimulation and repeated irritation; and as it has no nervous system it would be difficult to say how disease of it could be regarded as concerned in the loss.

There can be no doubt therefore that all of these conditions may obtain and it depends upon the acumen of the observer to determine the predominance of one or the other.

The control of the sympathetic over these functions does not appear to be absolute even in man, for we frequently see impressions acting through the medium of the cerebro-spinal axis, causing the wildest uproar and tumult of the functions. For instance, we have the thousand and one manifestations of hysteria from fright, temper, or irritation; cardiac paralysis or palpitation from fear or joy or anger; diarrhoea and abortion from fright; blushing, cutis anserina, ecstatic bleeding, suppressed menstruation, stoppage of digestion and glandular secretion from fear or disgust. All of these effects can only take place through the medium of the brain and spinal nerves, and the sympathetic either assists in the revolt, or lays down its authority. It is but proper to say, however, that these conditions frequently occur in persons of feeble innervation or

exhausted vitality; though oftentimes the most robust are the subject of them.

The mutual relations and possible interactions of these different lesions should be steadily kept in view.

All treatment will prove unavailing, or, at best, only palliative, until the exciting cause or *point du départ* of the disease is discovered. This will sometimes be of the most unexpected nature, as, for instance, anal fissure or disturbance of the cerebral circulation, while in another it may be so obvious as to give rise to astonishment that it should have been overlooked. I remember a case which came into my hands some two years ago, where a lady about forty, the mother of two children and the subject of several miscarriages, had been vainly treated for a long time for "irritability of the bladder" and incontinence of urine. Her existence was a burden to her, as she could neither walk, ride for any distance, shop, or visit the theatre. She could not sleep in peace, nor even keep herself decently cleanly. I am convinced it was only a want of due care which had permitted the cause so long to escape detection. She had an anteverted uterus which pressed upon the bladder; and as soon as this was relieved the woman was well. A subsequent delivery, at full term, has produced no return of the disorder.

In the very young, from whom it is difficult to obtain always definite replies, the cause may easily escape observation. Saburral conditions of the stomach or bowels, the irritation of teething, worms, concussion of the brain, or a feeble, scrofulous and

nervous temperament, are the most common causes. In these cases, after removing the offending conditions and regulating the bowels by a mild mercurial, (calomel or pil. rhei. comp., or some other cathartic) when the disease still persists, I have had much success with

Tr. Lyttæ,	3v.
Tr. nucis vomicæ,	3iij.
Vini ferri dulcis,	3v.

M—A half teaspoonful twice or thrice a day to a child five or six years old.

If there be much nervous irritability there may be combined with this a drachm or a drachm and a half of Magendie's Solution of Morphine; also

Tr. nucis vomicæ.
Tr. ferri acet. aa, 3iij,

M—10 or 15 drops to be given after breakfast, and twice during the day.

In these cases the urine does not retain its normal character. It is always more copious than natural, of lower specific gravity, lighter in color, and rarely contains the proper amount of characteristic organic ingredients. In a case presenting these characteristics, arising from inherent feebleness of constitution and highly sensitive nervous system, I have obtained complete relief from the above prescriptions, combined with a tonic—

R. Syrup of the Hypophosphites,	3v.
Elixir of yellow Peruv. Bark,	3v.

M—A teaspoonful twice a day before meals.

These cases generally bear iron well.

The affection is more common in girls than in boys, and with them it is desirable to ascertain the absence of all vaginal discharge, worms, or other sources of rectal or vaginal irritation. The child

should also be urged to exert the will during the day, and so accustom the bladder, if irritable, to the presence of urine. The best sedatives, in this form of irritable bladder, are small doses of Opium, Hyosciamus, or Conium.

I have no doubt, also, that many cases in which the water cannot be held beyond a certain point, arise from the child *not knowing how to do it*, from a lack of the co-ordinating power. The sphincter is about to relax, say, from the presence of urine. The child noticing the call, and remembering his weakness, endeavors spasmodically to close it; but unfortunately he also contracts the bladder at the same time and the urine is voided. Advancing intelligence and vigilance are the best cures for this. Opium and Cantharides, however, will greatly strengthen the resisting power of the sphincter.

If the disorder has arisen from over-distension of the bladder, there may result an affection of the nerves, or of the muscular fibre, or of both, inducing paralysis of the viscus, and allowing it to fill up without the knowledge of the patient, and to dribble away drop by drop. This condition is more likely to occur later in life and from injury (as from blows on the head, spine, abdomen or perineum, difficult labor, paralysis, or disease of the lumbosacral nerves), than in early youth. The catheter should then be in constant use, and Tannin, Catechu, Ergot, Uva Ursi, Buchu, Cubebs, Nitrate of Potash and Opium should be used, combined with the cautious use of the cold douche or shower-bath to the sacrum; or a blister over the same part. The Tannic Acid acts as a strong astringent (I am not yet

prepared to advocate its injection) the Uva Ursi as an astringent and excitor of the detrusores urinæ—the Ergot exercises a most powerful influence over the unstriped muscular fibre; the Buchu is a most efficient stimulant to the bladder as well as a diuretic; the Cubebs is a stimulating tonic with an especial tendency to the urinary mucous membranes; the Nitrate of Potash acts upon the internal coats of the bladder by rendering the urine more acid and stimulating; and Opium has the most marked and singular effect of contracting the bladder and diminishing its calibre, of decreasing the secretion of urine, and of producing a tonic contraction of the sphincter vesicæ. These remedies may be used singly and in various combinations. An excellent one is—

R.	Elixir Aromat. Secalis	$\overline{3}$ ss.
	Tr. Uva Ursi	$\overline{3}$ ss.
	Tr. Buchu	$\overline{3}$ vi
	Ess. Pyrolæ	$\overline{3}$ ij.
	Syrup Zingiberis	$\overline{3}$ j.

M—Half or one teaspoonful three times a day for an adult.

Were the action of the Haschisch or Cannabis Indica more certain, I would recommend it in combination—but it may be used alone in doses of from fifteen to forty minims, carefully watched. Another efficacious combination is—

R.	Nitrate of Potash	gr. x.
	Tannin	gr. ij.

M—pro dose. To be taken three times a day in simple syrup or solution.

Strychine has been injected into the bladder with success in the proportion of 1 part to 1000 parts of water.

Where the disease arises from abnormal irritability of the bladder, the cause may be impacted

calculus of urethra, calculus of the kidney, other diseases of the kidney, uterus, or vagina, hæmorrhoids, results of gonorrhœal inflammation, enlargement of middle lobe of the prostate, etc.

If from calculus of the urethra the cause will be obvious, and its removal imperative. If a calculus in the pelvis of the kidney should be the source of the difficulty, there will be found, besides the pain in the bladder and urethra after micturition, a dull pain in the kidney, extending through the urethra to the pubes or down the thigh, the testicle will sometimes be swollen and indurated, and the urine acid, turbid and containing albumen. In this condition our only hope is to allay the symptoms and relieve suffering. Dry cupping over the loins will be of service, Opiates, Hyosciamus, Conium, and Wine of Colchicum. Leeches may also be applied to the perineum. In cases dependent on other disorders of the kidneys, disease of the uterus or vagina, hæmorrhoids, fissure of the anus, etc., means appropriate to those disorders should first be used. In endometritis, cervical or fundal, uterine displacements, &c., the prolonged administration of arsenic, with a bitter tonic, the warm uterine douche, at 98° Fahr., maintained for 20 minutes by means of Davidson's syringe, and hot sitz baths for 30 minutes daily should be tried simultaneously. In hæmorrhoidal affections the extract of the Witch-Hazel externally applied, and taken internally in doses of ten drops thrice a day on a bit of sugar, will afford great relief. If anal fissure or internal hæmorrhoids are the source of the difficulty, the sphincter ani should be ruptured and placed at rest. The internal piles

will probably be ruptured by the operation, and placed in a condition to heal from the bottom. The patient must be kept in bed, and the bowels kept at rest by a strong opiate for some days.

If the irritation arise from the enlargement of the middle lobe of the prostate, it will be found that the urine is turbid, foul, loaded with phosphates, high colored and offensive. There is always a good deal of disturbance of the digestive organs, and the general health is impaired. Moreover, it being impossible ever to completely empty the bladder, a certain portion of urine remains in contact with the most sensitive portion—the trigone vesicale, and there decomposing perpetuates the irritation. The prostatic catheter must be had recourse to in these cases, the bladder completely emptied and even syringed out with warm water.

All of these cases will be improved by the exhibition of bland and mucilaginous drinks, by rest, by the application of the strong Tincture of Aconite over the pubes, and the careful avoidance of all excesses of diet calculated to increase the acidity or irritating properties of the urine.

The administration of Belladonna in small doses, say from the 1-32 to 1-12 of a grain three times a day, from its well known power of allaying spasm and lessening the rigidity and spasmodic contraction of muscular fibres, will be found worthy of trial fairly in almost all irritable cases.

In those cases, lastly, dependent on atony or paralysis of the sphincter vesicæ, the sheet anchor of treatment will be strychnine or nux-vomica, variously combined with the Tincture of Cantharides, Opium,

Morphine, or Cannabis indica, iron and the vegetable tonics, as for instance.

R. Ext. nucis vomicæ gr. viij
 Oxydi ferri nigri ʒj
 Pulv quassia ʒj
 Syr. absinthæ q.s.

M—Ft massa et in pil XLviij divide.
 One pill to be taken three times a day.

With this may be given also any one of the many so-called ferrated elixirs of bark. They are all of them mild and excellent tonics for children. If there be much nervous disturbance with it—

Tr. Cantharidis ʒss
 Tr. Hyosciami ʒij

M—a half teaspoonful twice or thrice a day.

A blister to the sacrum will also sometimes have the most marked effect.

If there be also a condition of morbid irritability of the neck—

Ext. Belladonna gr. iij.
 Ext. Nucis Vomica gr. ivss.
 Phos. acid. dil. ʒj.

M—fifteen drops three times a day.

If from a difficult labor, causing paralysis of the bladder or sphincter vesicæ, from pressure—

Ergot of Rye (Elixir Aromat.) ʒiij.
 Tr. nucis vom. ʒj.
 Phos. acid dil. ʒj

M—fifteen drops three times a day.

Or—

Strychniæ gr. j.
 Tr. Ferri sesqui-chlor ʒij.
 Balsam. Copaib. ʒj.
 Infus. quassia ʒxij.

M—Dose, an ounce three times a day.

Tannin may also be given in one grain doses, in substance night and morning.

An excellent combination is—

Fl. Ext. Cubebæ	$\mathfrak{z}\dot{\text{ij}}.$
Fl. Ext. Buchu	$\mathfrak{z}\text{iv}.$
Ess. Gaultheriæ	$q. s.$

M—Fifteen to thirty drops every two or four hours.

The balsams have also been recommended by Mr. Chabrely, as for instance—

R. Styrax balsam	$\mathfrak{z}\text{iss}.$
Peruv. balsam	$\mathfrak{z}\text{iv}.$
Honey	$\mathfrak{z}\dot{\text{ij}}.$
Pulv. gum acac.	$q. s.$

M—To make an electuary—a teaspoonful night and morning.

Or—

R. Styrax balsam	$\mathfrak{z}\text{iss}.$
Balsam Tolu	$\mathfrak{z}\dot{\text{ij}}.$

M—Ft. massa et div. in pil $\overline{\text{aa}}$ gr. v. to be silvered Four to eight pills a day.

Benzoic acid has also been used with benefit in doses of three grains in pill, two or three times a day. Combined with the tonics, wine should be given, in small quantities daily.

If all these plans should fail, (and fail they will and must in some cases) electricity should be tried. As to its mode of application I should prefer to refer to Dr. Hammond's forthcoming translation of Meyer's work on Medical Electricity, as opinion is much divided as to the relative merits of the induced and continuous currents in atony and paralysis of muscular tissues. It should be applied, however, to the parts as I have indicated above.

If all other means should fail, recourse may be had to a plan (first recommended, I think, by Sir Benj. Brodie, and quoted by Gross) of tying under the penis, along the urethra, a piece of flexible catheter by adhesive straps applied from the glans toward the pubes, and to be removed and replaced

when the patient urinates. A *jugum* should never be used.

If the dribbling be constant, some means must be devised to keep the patient decently clean and sweet; and for this purpose a vast quantity of portable urinals have been devised, which may be found at the various instrument makers. It will be found much more difficult to adapt them successfully to girls than to boys, in consequence of the conformation of the parts.

The best application to allay and soothe the excoriation produced by the urine, will be found to be a mixture of Zinc Ointment and Glycerine.





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